

# Humidity + Temperature Controllers

**OMEGA** MONOGRAM®

**iSeries**



**\$390**  
Monitor  
**\$490**  
with 2 control outputs



- ✓ Dual Loop Control
- ✓ Humidity + Temperature
- ✓ High Accuracy  $\pm 0.5^{\circ}\text{C}$  and  $\pm 2\%$  RH
- ✓ 4 Popular DIN Sizes
- ✓ Ethernet and Serial Communications (optional)
- ✓ 2 Control or Alarm Outputs (optional)
- ✓ Choice of Relays, SSR, DC Pulse, Analog Voltage and Current
- ✓ RH/Temperature Probe included
- ✓ Full Autotune PID Control
- ✓ Programmable Ramp and Soak for Humidity and/or Temperature

The OMEGA® iTH Series instruments monitor and control both temperature and relative humidity.

All meters and controllers in the series are high quality, highly accurate instruments featuring Omega's award-winning iSeries technology, uncompromising accuracy, and Made in the U.S.A. quality, backed by an extended 5-year warranty.

The instruments are simple to configure and use, while providing tremendous versatility and a wealth of powerful features.

The OMEGA iTH Series instruments are available either as monitors or controllers. The monitors are extremely accurate programmable digital panel meters displaying humidity, temperature, or dew point. The controllers also provide dual loop control for both humidity and temperature and are easily programmed for any control or alarming requirement from simple on-off to full autotune PID control.

The iTH family of meters and controllers are available in four DIN sizes: the ultra compact 1/32 DIN (the world's smallest dual loop Humidity + Temperature controller); the popular midsize 1/16 DIN square bezel with dual display; the 1/8 DIN vertical, and the 1/8 DIN horizontal with the big bright 21mm digits.

The OMEGA iTH Series LED displays can be programmed to change color between Green, Amber, and Red at any set point or alarm point.

The iTH controller models offer a choice of two control or alarm outputs in almost any combination: solid state relays (SSR); Form "C" SPDT (Single Pole Double Throw) relays; pulsed 10 Vdc output for use with an external SSR; or Analog Output selectable for control or retransmission of the process value.

The Networking and Communications options (highly recommended) include direct Ethernet LAN connectivity with an Embedded Web Server, and serial communications. The -C24 serial communications option includes both RS-232 and RS-485. Protocols include both MODBUS and a straightforward ASCII protocol. The -C4EI option includes both Ethernet and RS-485 ASCII/MODBUS on one device.

The iTH Series meters and controllers are designed for easy integration with popular industrial automation, data acquisition and control programs as well as Microsoft Visual Basic and Excel. OMEGA® provides free configuration software which makes it fast and easy to get up and running. Available on CD-ROM and for download off the web.

## SPECIFICATIONS

### Control

**Action:** Reverse (heat) or direct (cool)  
**Modes:** Time and Amplitude Proportional Control Modes; selectable Manual or Auto PID, Proportional, Proportional with Integral, Proportional with Derivative with Anti-reset Windup and ON/OFF  
**Rate:** 0 to 399.9 seconds  
**Reset:** 0 to 3999 seconds  
**Cycle Time:** 1 to 199 seconds; set to 0 for ON/OFF operation  
**Gain:** 0.5 to 100% of span; Setpoints 1 or 2  
**Damping:** 0000 to 0008  
**Soak:** 00.00 to 99.59 (HH:MM), or OFF  
**Ramp to Setpoint:** 00.00 to 99.59 (HH:MM), or OFF  
**Auto Tune:** Operator initiated from front panel for one input at a time only

### Control Output 1 & 2

**Relay:** 250 Vac or 30 Vdc @ 3A (resistive load); configurable for on/off, PID, Ramp and Soak  
**Output 1:** SPDT type, can be configured as Alarm 1 output. **Output 2:** SPDT type, can be configured as Alarm 2 output

**SSR:** 20 to 265 Vac @ 0.05 to 0.5 A (resistive load); continuous

**DC Pulse:** Non-Isolated; 10 Vdc @ 20 mA

**Analog Output (Output 1 only):** Non-Isolated, Proportional 0 to 10Vdc or 0 to 20mA; 500Ω max

### Alarm 1 & 2 (programmable)

**Type:** Same as Output 1 and 2

**Operation:** High/low, above/below, band, latch/unlatch, normally open/normally closed and process/deviation; front panel configurations

**Analog Output (programmable):** Non-Isolated, Retransmission 0 to 10Vdc or 0 to 20mA, 500Ω max (Output 1 only). Accuracy is ± 1% of FS when following conditions are satisfied.

- 1) Input is not scaled below 1% of Input FS.
- 2) Analog Out is not scaled below 3% of Output FS.

### Sensor Specifications

**Relative Humidity Accuracy/Range:**

±2% for 10 to 90% RH

±3% for 0 to 10% RH and 90 to 100% RH

**Hysteresis:** ±1% RH; **Non-Linearity:** ±3%

**Temperature Accuracy/Range\*:**

±0.5°C (±1°F) for 0 to 80°C (32 to 176°F)

±1°C (±2°F) for -40 to 0°C and 80 to 124°C

(-40 to 32°F and 176 to 254°F)

**Resolution:** 0.03%, 12 bit for RH;

0.01°C, 14 bit for Temperature

**Response Time:** 4 sec for RH; 5 sec for Temp (63% slowly moving air)

\*Note: extended temperature range is for Probe only, the unit's operating temperature is 0-50°C

### Network and Serial Communications

**Supported Protocols:** TCP/IP, ARP, HTTPGET

**RS-232/RS-422/RS-485:** selectable from menu; both ASCII and Modbus protocol selectable from menu. Programmable 300 to 19.2 K baud; complete programmable setup capability; program to transmit current display, alarm status, min/max, actual measured input value and status

**RS-485:** Addressable from 0 to 199

**Ethernet:** Standards Compliance

IEEE 802.3 10Base-T

**Connection:** Screw terminals

### General

**A/D Conversion:** 12 bit RH and 14 bit Temp.

**Reading Rate:** 2 samples per second max.

**Digital Filter:** Programmable

**Display:** 4-digit, 9-segment LED

• 10.2 mm (0.40"): i32, i16D, i8DV

• 10.2 mm (0.40") & 21 mm (0.83"): i8DH

red, green and amber programmable colors

### Operating Temperature:

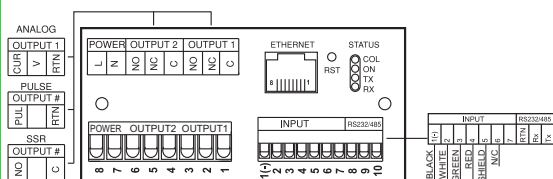
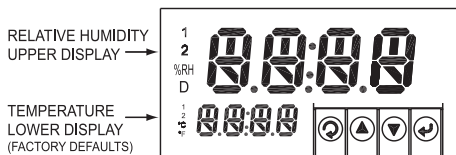
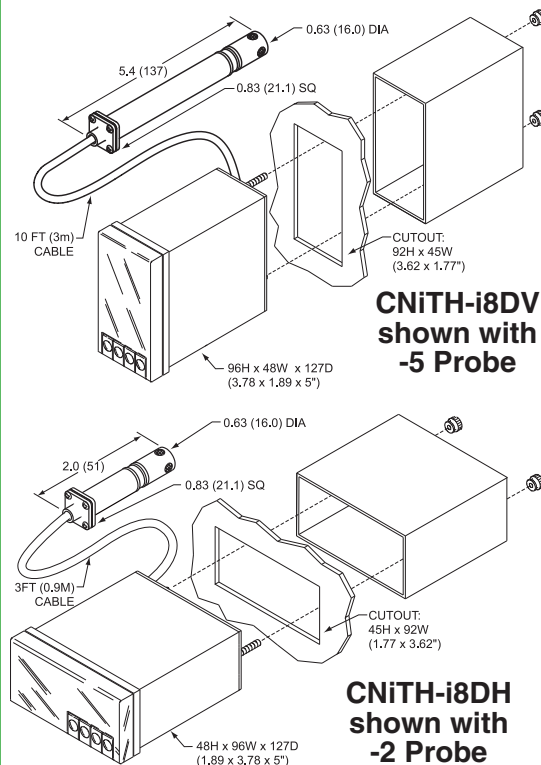
0 to 50°C (32 to 122°F), 90% RH non-condensing

**Power:** Refer to ordering guide below.

No CE compliance above 60 Hz

Units can be powered safely with 24Vac power, but no certification for CE/UL are claimed

**For other General Specifications, refer to the iSeries Common Specs page.**



For other mechanical drawings refer to the iSeries Temperature/Process Controller pages. Dimensions shown in inches (mm)

## To Order (\*Specify Model No.)

Model No.	DESCRIPTION	Price
DPiTH- (****)	Monitor version, no control outputs	\$390
CNiTH- (****) (**)	Controller version, select 2 control outputs	\$490
i8DH	Temperature and RH Input 1/8 DIN Dual Display Horizontal	
i8DV	Temperature and RH Input 1/8 DIN Dual Display Vertical	
i16D	Temperature and RH Input 1/16 DIN Dual Display	
i32	Temperature and RH Input 1/32 DIN Single Display *2	

### CONTROL OUTPUTS

Option	Description	Price
2 2	Two solid state relays (SSR's): 0.5 A @ 120/240 Vac continuous	
2 3	SSR and relay: Form "C" SPDT 3A @ 120Vac, 3A @ 240Vac	
2 4	SSR and pulsed 10 Vdc @ 20 mA (for use with external SSR)	
3 3	2 Relays: Form "C" SPDT 3 A @ 120 Vac, 3 A @ 240 Vac	
4 2	Pulsed 10 Vdc @ 20 mA (for use with external SSR) and SSR	
4 3	Pulsed 10 Vdc @ 20 mA (for use with external SSR) and relay	
4 4	Two pulsed 10 Vdc @ 20 mA (for use with external SSR)	
5 2	Analog Output selectable as either control or retransmission of process value; 0 to 10 Vdc or 0-20 mA @ 500 ohm max. & SSR	
5 3	Analog Output 0 to 10 Vdc or 0-20 mA @ 500 ohm max & Relay	
5 4	Analog Out 0 to 10Vdc or 0-20mA @ 500 ohm max & Pulse 10V	
-AL	Limit Alarm Version (Simplified Menu; No PID Control) *1	N/C

### RH/TEMPERATURE PROBE (must select one)

Option	Description	Price
-2	2" (51mm) Probe for iTH with 3 ft (0.9 m) cable	N/C
-5	5" (137mm) Probe for iTH with 10 ft (3 m) cable	N/C

### POWER SUPPLY

Option	Description	Price
*	Standard power input: 90 to 240 Vac ±10%, 50 to 400 Hz, 110 to 375 Vdc, equivalent voltage (*no entry required)	N/C
-DC	Low Voltage Power Option: 12 to 36 Vdc; 24 Vac ±10%	25

### NETWORK OPTIONS

Option	Description	Price
-EI	Ethernet with Embedded Web Server	55
-C24	Isolated RS-232 and RS-485/422. 300 to 19.2K Baud	60
-C4EI	Ethernet with Embedded Web Server + Isolated RS-485/422 hub for up to 31 devices	115

### FACTORY SETUP

Option	Description	Price
-FS	Factory Setup and Configuration (requires Network Option)	N/C

### SOFTWARE (Requires Network Option)

Option	Description	Price
OPC-SERVER LICENSE	OPC Server/Driver Software License	295

\*1 Analog Output (Option 5) is not available with -AL units.

\*2 -C4EI or -EI option is not available on the 1/32 DIN. Refer to the iServer section for other Ethernet devices that can connect to an CNiTH-i32xx-x-C24 .

### ORDERING EXAMPLES:

**CNiTH-i8DH43-5-C4EI** is a horizontal 1/8 DIN Dual display with pulse and relay outputs, a 5" probe and Ethernet with Embedded Web Server <sup>\$490 + 115 = \$605</sup>

**DPiTH-i16D-2-EI** is a 1/16 DIN Dual display with a 2" probe and Ethernet with Embedded Web Server <sup>\$390 + 55 = \$445</sup>